

**§ 28.880**

made by, or under the supervision of, the officer of the watch.

**§ 28.880 Hydraulic equipment.**

(a) Each hydraulic system must be so designed and installed that proper operation of the system is not affected by back pressure in the system.

(b) Piping and piping components must be designed with a burst pressure of not less than four times the system's maximum operating pressure.

(c) Each hydraulic system must be equipped with at least one pressure relieving device set to relieve at the system's maximum operating pressure.

(d) All material in a hydraulic system must be suitable for use with the hydraulic fluid used and must be of such chemical and physical properties as to remain ductile at the lowest operating temperature likely to be encountered by the vessel.

(e) Except for hydraulic steering equipment, controls for operating hydraulic equipment must be located where the operator has an unobstructed view of the controls for operating hydraulic equipment and the adjacent work area. Protection shall be afforded to the operator of hydraulic equipment against falling or swinging objects and/or cargo.

(f) Controls for hydraulic equipment must be so arranged that the operator is able to quickly disengage the equipment in an emergency.

(g) Hydraulically operated machinery must be fail-safe or equipped with a holding device to prevent uncontrolled movement or sudden loss of control due to loss of hydraulic system pressure. A system is considered to be fail-safe if a component failure results in a slow and controlled release of the load so as not to endanger personnel.

(h) Nonmetallic flexible hose assemblies must only be used between two points of relative motion, limited to the least amount of length that will afford maximum multidirectional movement of the equipment served.

(i) Hose end fittings must comply with SAE J1475, (Hydraulic Hose Fittings For Marine Applications). Field attachable fittings must be installed following the manufacturer's recommended practice (method).

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(j) Nonmetallic flexible hose shall be marked with the manufacturer's name or trademark, type or catalog number and maximum allowable working pressure.

(k) Existing hydraulic piping, non-metallic hose assemblies, and components may be continued in service so long as they are maintained in good condition to the satisfaction of the Coast Guard Representative, but all new installations, or replacements shall meet the applicable specifications or requirements of this section.

**§ 28.885 Cargo gear.**

(a) The safe working load (SWL) for the assembled gear shall be marked on the heel of each cargo boom, crane, or derrick. These letters and figures are to be in contrasting colors to the background and at least one inch in height. The SWL is construed to be the load the gear is approved to lift, excluding the weight of the gear itself.

(b) All wire rope, chains, rings, hooks, links, shackles, swivels, blocks, and any other loose gear used or intended to be used in cargo loading or unloading must be commensurable with the SWL rating in paragraph (a) of this section. This gear shall be visually inspected by the vessel's captain or his designee at frequent intervals, and in any event not less than once in each operating month.

(c) In addition to the inspection required in paragraph (b) of this section, a biennial, (every second year), thorough examination and proof load test, at a minimum of the SWL rating, shall be performed and witnessed by competent personnel. The proof load applied to the winches, booms, derricks, cranes and all associated gear shall be lifted with the ship's normal tackle with the boom or derrick at the lowest practicable angle. When the load has been lifted, it shall be swung as far as possible in both directions.

(d) After satisfactory completion of the tests and examinations required in paragraphs (b) and (c) of this section, all results and notations together with the date and location of each shall be maintained and available to Coast Guard representatives upon request.